LIBRARY
OF THE
SOCIETY.

Irrigation Revenue Report of the Bombay Presidency (excluding Sind)

For the Year 1928-29

[Price—Annas 8 *or* 4*d*.]

BOMBAY
PRINTED AT THE GOVERNMENT CENTRAL PRESS
1930

Obtainable from the Superintendent, Government Printing and Stationery, Bombay, or through the High Commissioner for India, India House, Aldwych, London, W.C.2, or through any recognized Bookseller

BOMBAY BRANCH
OF THE
Royal Asiatic Society.

Digitized with financial assistance from the
Government of Maharashtra
on 22 July, 2017

CONTENTS

PART I

	PAGES
Dealing with Irrigation Works for which Capital and Revenue accounts are kept	
General Remarks	1-10
Detailed Reports :—	
Hathmati and Khari Cut Canals	10
Wangroli Tank	11-12
Savlimak	
Sana	
Tranza-Nagama Tanks	
Futelao Tank	
Nira Left Bank Canal and Shetphal Tank	12-14
Nira Right Bank Canal	14-16
Mhasvad Tank	16-17
Mutha Canals including Matoba Tank	17-18
Kasurdi Tank	19
Shirsuphal Tank	
Bhadalwadi Tank	19-20
Godavari Right and Left Bank Canals	20-21
Pravara River Works—Pravara Right and Left Bank Canals ..	21-22
Chankapur Tank—Girna Left Bank Canal	23-24
Kadwa River Works	24-25
Parsul Tank	25
Ekruk Tank	26-27
Koregaon Tank	
Ashti Tank	
Pathri Tank	
Bhatodi Tank	27
Jamda Canals	28
Hartala Tank	28-29
Mhaswa Tank	
Shahada Channel	29
Lower Panjhra River Works	29-30
Krishna Canal	30-31
Rewari Canal	
Upper Man River Works	
Yerla River Irrigation Works	
Chikhli Canal	
Maini Tank	
Muchkundi Tank	32
Gadikeri Tank	
Gokak Canal, 1st Section, and Storage Works	33
Dambal Tank	
Medleri Tank	33-34
Madag Tank	34
Asundi Tank	
Mavinkop Tank	35
Dharma Canal	
Statement showing rainfall gauged at the sites of works classed under the head "55" in the Southern Circle	35

LIBRARY OF THE

PART II

	PAGES
Dealing with Irrigation Works for which neither Capital nor Revenue accounts are kept	
General Remarks	37-39
Detailed Reports :—	
Works in Ahmedabad, Kaira and Panch Mahals and Surat and Broach Divisions	40-41
Works in the Mutha Canals Division	42
Do. Nasik Irrigation Division	42-43
Do. East Khandesh Division	43
Do. West Khandesh Division	43-44
Do. Satara Division	44
Do. Sholapur Division	
Do. Dharwar Division	45
Do. Belgaum Division	
Do. Dharwar Irrigation Division	
Government Resolution reviewing the report	47-49

IRRIGATION REVENUE REPORT
BOMBAY PRESIDENCY, EXCLUDING SIND
1928-29.

PART I

COMPRISING IRRIGATION WORKS FOR WHICH CAPITAL AND REVENUE ACCOUNTS ARE KEPT

GENERAL REMARKS

Works in operation. The following list includes all the works in operation (43 in number) :—

Collectorate	Serial Number	Name of Work	Area of four months crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon season and 120 acres for the rabi season per cusec	Whether supply is reliable or dependent on local rain	Storage works completed or proposed	Remarks
		Productive	**Acres.**			
Belgaum ..	1	Gadikeri Tank.	418	Dependent on local rain.	Completed ..	Deccan catchment.
Kanara ..	2	Mavinkop Tank.	617	Do. ..	Do. ..	Forest catchment.
West Khandesh.	3	Shahada Channel.	2,000	Reliable ..	No storage work.	Hilly catchment. Supply is perennial.
		Unproductive.				
Ahmedabad .	4	Hathmati and Khari Cut Canals	24,000	Dependent on local rain.	No storage work. Bokh reservoir and Chandola tank and Wasai reservoir completed.	The catchment of the Hathmati river is hilly, covered partly with forest and that of Khari is undulating ground at its source and then plain ground with cultivated fields. Supply depends upon the flow in the rivers, and the contents of the Bokh reservoir and the Chandola tank and Wasi reservoir.

Collectorate	Serial Number	Name of Work	Area of four months' crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon season and 120 acres for the rabi season per cusec	Whether supply is reliable or dependent on local rain	Storage works completed or proposed	Remarks
			Acres.			
		Unproductive—*contd.*				
Kaira ..	5	Wangroli Tank.	3,400	Dependent on local rain.	Completed ..	Ordinary catchment on plain ground and cultivated fields.
	6	Tranza Nagrama Tanks.	800	Do. ..	Do. ..	The Tranza tank has no independent catchment. The Nagrama tank has a catchment of 1·5 sq. miles. Both are fed by the Matar drainage channel which is not reliable as it seldom flows.
	7	Savli Tank ..	3,000	Do. ..	Do. ..	Ordinary catchment on undulating ground.
	8	Saint Tank .	2,000	Do. ..	Do. ..	Ordinary catchment on flat ground.
Panch Mahals	9	Futelao Tank	800	Do. ..	Do. ..	Hilly catchment.
East Khandesh.	10	Hartala Tank.	978	Do. ..	Do. ..	Deccan catchment.
	11	Mhaswa Tank.	3,256	Do. ..	Do. ..	Do.
	12	Jamda Canals.	42,000	Girna River supply not reliable.	Storage tank on the Panjan river under contemplation. Water is issued from the Chankapur Tank when available.	Ghat catchment for a small part and for the rest Deccan catchment.
West Khandesh.	13	Lower Panjhra River Works. .	8,173	Panjhra river supply not reliable.	Mukti tank completed.	Ghat catchment for one part and Deccan catchment for the rest.
Nasik ..	14	Kadwa River Works. Palkhed Canal. Ojhar Tambat Canal.	6,600	Reliable ..	Waghad tank completed.	Ghat catchment.
		Wadali canal.	1,080	Do. ..		
	15	Girna Left Bank Canal	9,000	Do. ..	Chankapur Tank completed.	.. Do.
	16	Parsul Tank.	1,440	Dependent on local rain.	Completed ..	Deccan catchment.

Collectorate	Serial Number	Name of Work	Area of four months crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon season and 120 acres for the rabi season per cusec	Whether supply is reliable or dependent on local rain	Storage works completed or proposed	Remarks
			Acres			
		Unproductive —*contd.*				
Nasik and Ahmednagar.	17	Godavari Right Bank Canal.	44,000	Reliable ..	Lake Beale completed.	Ghat catchment.
		Godavari Left Bank Canal.	26,000			
Ahmednagar.	18	Pravara Right Bank Canal.	18,480	Reliable ..	Lake Arthur Hill (Wilson Dam) completed.	Ghat catchment.
		Pravara Left Bank Canal.	64,080			
	19	Bhatodi Tank.	1,461	Dependent on local rain.	Completed ..	Deccan catchment.
Poona ..	20	Mutha Canals including Matoba Tank.	49,000	Reliable ..	Lake Fife completed.	Ghat catchment.
	21	Kasurdi Tank.	40	Dependent on local rain.	Completed ..	Deccan catchment
	22	Shirsuphal Tank.	1,150	Do. ..	Do. ..	Do.
	23	Bhadalvadi Tank.	1,225	Do. ..	Do. ..	Do.
	24	Nira Left Bank Canal including Shotphal Tank.	86,400	Reliable ..	Lake Whiting (Lloyd Dam) completed.	Ghat catchment.
Poona, Satara, Sholapur and Phaltan State.	25	Nira Right Bank Canal.	180,000	Do. ..	Do. ..	Do.
Sholapur ..	26	Mhaswad Tank.	14,000	Dependent on local rain.	Completed ..	Deccan catchment.
	27	Ekruk Tank.	13,070	Do. ..	Do. ..	Do.
	28	Koregaon Tank.	416	Do. ..	Do. ..	Hilly catchment.
	29	Ashti Tank .	3,382	Do. ..	Do. ..	Deccan catchment.
	30	Pathri Tank.	3,094	Do. ..	Do. ..	Hilly catchment.
Satara ..	31	Krishna Canal.	6,412	Reliable ..	Proposed ..	Ghat catchment.

Collectorate	Serial Number	Name of Work	Area of four months crops which could be irrigated in normal years with a duty at the head of the canal of 120 acres for the monsoon season and 320 acres for the rabi season per cusec	Whether supply is reliable or dependent on local rain	Storage works completed or proposed	Remarks
		Unproductive —*contd.*	Acres			
Satara—contd.	32	Rewari Canal.	439	Dependent on local rain.	*Nil.*	Deccan catchment.
	33	Upper Man River Works.	373	Do. ..	Pingli tank completed.	Do.
	34	Yerla River Irrigation Works.	1,182	Do. ..	Nehr tank completed.	Do.
	35	Chikhli Canal.	358	Do. ..	*Nil.*	Do.
	36	Maini Tank.	455	Do. ..	Completed ..	Do.
Bijapur ..	37	Muchkundi Tank.	750	Do. ..	Do. ..	Do.
Belgaum ..	38	Gokak Canal 1st Section and storage works.	17,027	Reliable ..	27 ft. completed.	Ghat catchment.
Dharwar ..	39	Dambal Tank.	531	Dependent local rain.	Completed ..	Deccan catchment.
	40	Medleri Tank.	231	Do. ..	Do. ..	Do.
	41	Madag Tank.	1,418	Do. ..	Do. ..	Ghat and forest catchment.
	42	Asundi Tank.	303	Do. ..	Do. ..	Deccan catchment.
	43	Dharma Canal.	For monsoon season 6,589 acres. For rabi nil.	Do. ..	No storage works. The canal takes off from the river itself.	Forest catchment.

The Budhihal tank, Gokak Canal Survey, Victoria tank and the Suki River Project are not included in this report as they are not in operation.

Interest Account.

2. The interest account for the year stands as follows:—

	Productive Works	Unproductive Works	Total
	Rs.	Rs.	Rs.
Total interest charges during 1928-29.	5,727	39,79,733	39,85,460
Net Revenue realised during 1928-29.	7,766	14,90,511	14,98,277

Net Loss—Difference between interest and net revenue Rs. 24,87,183.

3. The gross revenue realised from all sources during the year after deducting refunds of revenue (Rs. 23,976) was Rs. 32,97,763 of which Rs. 32,76,615 were direct and Rs. 21,148 indirect receipts. The net revenue actually realised was Rs. 14,98,277. The gross revenue and the net revenue show a decrease of Rs. 3,65,718 and Rs. 5,63,759 respectively when compared with the figures for 1927-28.

Area under Command and irrigable area.

4. The gross area under command was 1,872,879 acres. The area irrigable at present is 626,919 acres.

5. The financial results of the year by main heads were as under :—

	Area irrigated	Revenue realised			Working expenses	Net revenue
		Direct receipts	Share of land revenue	Total		
	Acres	Rs.	Rs.	Rs.	Rs.	Rs.
Productive ..	2,521	4,762	9,810	14,572	6,806	7,766
Unproductive ..	229,023	32,71,853	11,338	32,83,191	17,92,680	14,90,511
Total ..	231,544*	32,76,615	21,148	32,97,763	17,99,486	14,98,277

* Includes 9,463 acres under consolidated assessment.

6. The figures of area irrigated, revenue assessed and realised and working expenses as compared with those of the previous three years, are given below :—

Area irrigated, revenue etc.

Year	Area irrigated*	Revenue		Working expenses
		Assessment	Realisations	
	Acres	Rs.	Rs.	Rs.
1925-26	298,579	31,05,708	28,25,691	15,65,065
1926-27	272,164	35,61,623	30,34,339	15,30,460
1927-28	248,222	35,11,724	30,63,481	16,01,445
Average ..	272,988	33,93,018	31,74,504	15,65,657
1928-29	231,544	31,59,294	32,97,763	17,99,486

* Including area under consolidated water and land assessment.

The area irrigated shows a decrease of 16,678 acres as compared with the figure for the previous year. The decrease occurred in the Northern, Central and Irrigation Development and Research Circles and was due to timely and well-distributed rainfall.

7. The state of the collections was as follows :—

			Rs.
Balance of demands unrealised at the commencement of the year ..			18,59,207
Demands of the year :—		Rs.	
Rabi, 1927-28		7,18,177	
Kharif, 1928-29		21,43,285	
Miscellaneous receipts		3,60,289	
			32,21,751
	Total ..		50,80,958
Deduct—			
Remissions			16,228
			50,64,730
Write-back of erroneous credit in previous year ..			69,066
	Net total ..		49,95,664
Amount unrealised at the close of the year ..			16,95,073
		Rs.	
Actual receipts of the year ..		33,00,591	
Add—			
Share of land revenue		21,148	
			33,21,739
Deduct—			
Refunds of Revenue			23,976
Revenue realised as per paragraphs 3, 5 and 6 ..			32,97,763

The remissions and refunds together amounted to Rs. 40,204. The amount unrealised at the close of the year amounted to Rs. 16,95,073 showing a decrease of Rs. 1,52,169 from the amount in arrears at the close of the previous year. The largest amount was outstanding in the Deccan Irrigation Circle. The total is made up as follows :—

	Rs.
Hathmati and Khari Cut Canals	1,13,663
Ekruk Tank	14,499
Ashti Tank	10,972
Krishna Canal	56,908
Mhaswad Tank	23,015
Kadwa River Works	24,396
Chankapur Tank	23,499
Godavari Canals	4,29,313
Pravara Canals	4,31,832
Mutha Canals including Matoba Tank	1,49,658
Nira Right Bank Canal	1,27,462
Nira Left Bank Canal and Shetphal Tank ..	2,40,801
Gokak Canal First Section and Storage Works ..	21,971
Other works	27,084
Total ..	16,95,073

A portion of this amount has already been recovered since the close of the year and steps have been taken to recover the balance.

Working expenses.

8. The working expenses of the year amounted to Rs. 17,99,486 against Rs. 16,01,445 of the previous year showing an increase of Rs. 1,98,041. The Nira Right Bank Canal which has been recently opened for irrigation accounts for a large portion of the increase.

9. The following table contrasts the charges under the principal heads with those of the previous three years :—

	1925-26	1926-27	1927 28	1928-29
	Rs.	Rs.	Rs.	Rs.
Works	55,886	66,376	65,471	34,267
Repairs	5,33,159	5,26,701	6,09,152	5,64,625
Establishment	7,00,538	8,30,794	10,25,925	10,76,789
Tools and Plant ..	39,382	13,954	19,836	18,383
Total in the Public Works Department.	13,28,965	14,37,825	17,20,384	16,94,064
Collection charges	1,32,135	86,706	—1,25,695	99,420
Indirect charges	1,03,965	5,929	6,756	6,002
Total working expenses ..	15,65,065	15,30,460	16,01,445	17,99,486

Details of working expenses.

10. The following table gives the details of the working expenses on some of the principal works :—

Name of work	Average incidence of water rate per acre	Cost of measurement		Working expenses, total in the P. W. Department	
		Total cost	Per acre.	Per mile of main canal	Per acre irrigated
	Rs.	Rs.	Rs. a. p.	Rs.	Rs.
Nira Left Bank Canal and Shetphal Tank.	13·38	2,429	0 0 9	2,754	4·22
Pravara Canals	17·55	1,073	0 0 6	2,958	10·62
Girna Left Bank Canal ..	9·20	561	0 1 9	3,026	11·20
Godavari Canals	17·66	1,062	0 0 8	2,906	12·95
Mutha Canals and Matoba Tank .	17·57	1,138	0 1 4	1,560	9·99
Kadwa River Works ..	17·40	304	0 1 10	1,729	15·62
Mhaswad Tank	7·62	34	0 0 3	....	3·28
Nira Right Bank Canal ..	8·88	Not known.		1,414	16·27
Krishna Canal	12·85	670	0 2 2	393	5·15
Yerla River Irrigation Works ..	4·68	698	0 2 10	2,032	17·31
Upper Man River Works ..	4·52	214	0 2 5	399	5·08
Jamda Canals	4·84	112	0 1 11	283	11·93
Ekruk Tank	5·91	82	0 0 4	475	5·77
Ashti Tank	5·28	86	0 0 4	430	2·93
Maini Tank	3·85	304	0 2 10	535	2·90
Gokak Canal 1st Section ..	6·79	1,720	0 2 9	263	1·39
Dharma Canal	6·66	249	0 9 1	92	0·44

Gross assessed revenue.

11. The gross assessed revenue, direct and indirect, amounted to Rs. 31,59,294 against Rs. 35,11,724 of the previous year. The details of the gross assessment are as under :—

	Direct revenue			Indirect revenue	Total
	Water rates	Other receipts	Total		
	Rs.	Rs.	Rs.	Rs.	Rs.
Productive	2,475	12	2,487	9,810	12,297
Unproductive	27,75,382	3,60,277	31,35,659	11,338	31,46,997
Total ..	27,77,857	3,60,289	31,38,146	21,148	31,59,294

Net assessed revenue.

12. The net assessed revenue of the year after deducting working expenses, including indirect and other charges, was Rs. 13,59,808 against Rs. 19,10,279 of 1927-28.

13. The following table shows the percentage return earned on capital outlay on some of the principal works in operation :—

Name of work	Total capital outlay (direct and indirect)	Gross receipts (direct and indirect)	Working expenses (direct and indirect)	Net revenue	Percentage on capital outlay (column 2)
	Rs.	Rs.	Rs.	Rs.	
Hathmati and Khari Cut Canals	13,18,729	61,137	37,841	29,296	2·22
Lower Panjhra River Works ..	4,68,621	28,191	6,524	21,667	4·62
Krishna Canal	9,49,807	71,441	30,118	41,323	4·35
Ekruk Tank	13,40,386	1,28,550	26,510	1,02,040	7·61
Ashti Tank	8,41,708	24,812	13,114	11,698	1·39
Maini Tank	4,96,330	8,438	5,228	3,210	0·65
Nira Left Bank Canal and Shetphal Tank.	1,21,84,386	10,28,106	3,23,253	7,04,853	5·78
Kadwa River Works ..	10,35,876	33,887	41,509	−7,622	....
Pravara River Works ..	1,50,07,468	6,00,062	3,40,116	2,59,946	1·73
Godavari Canals	1,03,11,878	6,08,662	3,34,523	2,69,139	2·61
Mutha Canals including Mateba Tank.	65,52,201	3,02,269	1,37,281	1,64,988	2·52
Chankapur Tank—Girna Left Bank Canal.	20,56,431	38,525	57,501	−18,976	....
Mhaswad Tank	20,96,016	43,826	19,656	24,170	1·15
Gokak Canal 1st Section ..	14,66,167	75,405	13,542	61,863	4·23

Water rates.

14. The water rates in force during the year and the authority sanctioning them are shown in statement I-F accompanying the Irrigation Administration Report for 1928-29.

15. The average water rates per acre of land actually irrigated were :—

	Rs.
Productive works	5·40
Unproductive works	12·52

16. The water rate assessments and other receipts compare with those of the previous year as under :—

	1927-28	1928-29
	Rs.	Rs.
Water rates	31,08,595	27,77,857
Other Receipts—		
Plantations	12,463	16,571
Water power	14,313	14,313
Miscellaneous	3,54,405	3,29,405
Total ..	3,81,181	3,60,289
Share of land revenue	21,948	21,148
Grand Total ..	35,11,724	31,59,294.

17. The principal crop acreages irrigated during 1927-28 and 1928-29 were as under :—

Crop acreages.

	1927-28	1928-29	Difference
	Acres.	Acres.	Acres.
Gardens and orchards	4,660	4,704	+44
Sugarcane	42,578	39,421	—3,157
Wheat	16,036	13,845	—2,191
Rice	18,445	12,701	—5,744
Maize	4,104	9,647	+5,543
Jowar	62,408	57,113	—5,295
Bajri	20,430	13,311	—7,119
Gram, etc.	9,336	7,765	—1,571
Groundnut	17,189	14,734	—2,455
Condiments	6,841	4,916	—1,925
Cotton	9,206	15,596	+6,390
Fodder crops	4,622	2,360	—2,262

The total estimated value of crops was Rs. 2,51,96,399 against Rs. 3,15,80,366 in the previous year. These estimated crop values are only approximate as there is no uniform method of estimating them.

18. In statement I-E accompanying the Irrigation Administration Report for 1928-29 the duty of water on each work as well as the basis on which the duties are calculated, etc., are shown. The results vary with the nature of the crops irrigated, perennial crops requiring much more water than cereals. To obtain a correct comparative result it is necessary to consider the area of each class of crop grown under the canals concerned. Statement G affords means for such a comparison.

DETAILED REPORTS BY LOCAL OFFICERS

AHMEDABAD AND KAIRA AND PANCH MAHALS DIVISIONS

Works without storage and dependent on local rain

HATHMATI AND KHARI CUT CANALS

19. The area irrigated, net assessment, average water rate and the working expenses on the Hathmati and Khari Cut Canals compare with the average of the preceding three years as under :—

	Kharif		Rabi		Total		Average water rate assessed per acre.	Working expenses.
	Area irrigated	Assessment	Area irrigated	Assessment	Area irrigated	Assessment		
	Acres	Rs.	Acres.	Rs.	Acres	Rs.	Rs.	Rs.
Average ..	7,639	45,553	2,937	7,322	10,576	52,875	4·20	54,610
1928-29 ..	10,619	63,384	2,603	7,419	13,222	70,803	5·35	37,841

20. Besides the usual himayat deduction of Rs. 2,737, a remission of Rs. 2,452 was granted on account of the "Kamodi" disease and the out-turn of crop being less than 4 annas where the transplantation was late.

21. The gross revenue realised from all sources amounted to Rs. 67,066, exceeding the working expenses by Rs. 29,225. It shows a return of 2·2 per cent, on the total capital outlay exclusive of interest. If the interest charges for the year amounting to Rs. 41,409 are taken into account, the result is a loss of 0·9 per cent. on the capital cost of the Hathmati and Khari Cut Canals combined. The realisations which amounted to Rs. 67,066 against Rs. 43,491 of the previous year may be considered satisfactory. The balance of Rs. 97,151 outstanding will be collected when the new crops are matured.

22. The rainfall gauged at Himatnagar at the head of the Hathmati Canal was 27·80 inches in the kharif and 0·90 inch in the rabi season, and at Raipur at the head of the Khari Cut Canal it was 34·61 inches and 0·84 inch respectively.

Works with storage tanks dependent on local rainfall

23. The area irrigated, net assessment and the working expenses under the Wangroli, Savli, Saiat, Tranza-Nagrama and Futelao tanks compare with the average of the previous three years as under :—

Name of tank	Year	Kharif		Rabi		Total		Workng expenses
		Acres	Rs.	Acres	Rs.	Acres	Rs.	Rs.
Wangroli ..	Average ..	842	4,045	436	1,447	1,278	5,492	8,698
	1928-29 ..	364	1,861	160	671	524	2,532	6,994
Savli ..	Average ..	1,099	4,354	363	777	1,462	5,131	6,286
	1928-29 ..	1,006	4,072	..	..	1,006	4,069	6,349
Saiat ..	Average ..	432	1,500	230	854	662	2,354	7,935
	1928-29 ..	114	457	154	644	268	1,101	5,959
Tranza-Nagrama	Average ..	68	260	39	106	107	366	2,794
	1928-29 ..	..	..	..	..	..	..	2,525
Futelao ..	Average ..	..	..	75	214	75	214	1,825
	1928-29 ..	17	125	78	233	95	358	2,561

Wangroli Tank

24. The tank filled to its full supply level and the supply was utilised in irrigating hot weather, kharif and rabi crops such as sundhia, rice, gram and wheat. The surplus water of the last year was utilised in irrigating hot weather crops before the monsoon. The miscellaneous revenue from the tank amounted to Rs. 871 against Rs. 1,165 of the previous year. The decrease in revenue was due to less bed cultivation, as there was water in the tank. No remissions were granted during the year. The rainfall gauged at the site of the tank was 35·17 inches.

Savli Tank

25. The tank filled to its fully supply level and the replenishment was utilised in irrigating kharif crops, mainly rice. As the rainfall was favourable, there was not much demand for water in the kharif season and none in the rabi season. The miscellaneous revenue realised was Rs. 995 against Rs. 1,182 of the preceding year. No remissions were granted during the year. The rainfall gauged at the site of the tank was 31·07 inches.

Saiat Tank

26. The tank filled during the year after the breaches caused by the floods of July 1927 were repaired. The replenishment was utilised in irrigating Kharif and rabi crops, mainly rice and wheat. The miscellaneous revenue amounted to Rs. 820 against Rs. 1,185 of the previous year. The decrease was due to less bed cultivation. No remissions were granted during the year. The rainfall gauged at the site of the tank was 40·18 inches.

Tranza-Nagrama Tanks

27. The tanks were empty and there was no irrigation both in the kharif and rabi seasons. There was also no surplus water of the last year for irrigating hot-weather crops. The miscellaneous revenue amounted to Rs. 1,603 against Rs. 1,374 of the previous year. The increase in revenue was due to more tank-bed cultivation during the year. No remissions were granted. The rainfall gauged at Nagrama measured 30·60 inches and it was about the same at the Tranza tank also.

Futelao Tank

28. Though the tank filled, there was no demand for water in the kharif season owing to good rainfall. The supply was utilised for rabi crops, the surplus water of the previous year being utilised in irrigating hot weather crops. The miscellaneous revenue amounted to Rs. 39 against Rs. 71 of the preceding year. The decrease was due to less area having been cultivated during the year. No remissions were granted. The rainfall gauged at the site of the tank measured 30·07 inches.

NIRA LEFT BANK CANAL DIVISION

Works with Ghat Storage

Nira Left Bank Canal and Shetphal Tank

29. The average of the rainfall at Bhatgar, at the several gauging stations along the canal and at Shetphal during the year 1928 was 25·2 inches as against 18·1 inches, the average of the past five years. The monsoon in the catchment of Lake Whiting at Bhatgar as well as in the Canal tract was much above the average and was evenly spread over the whole season.

30. On 1st April, the level of water in Lake Whiting was 121·90 feet above the sill of the under-sluices, the corresponding contents being 16,378 million cubic feet. The lowest depth reached was 101·95 feet on 28th June, the corresponding contents being 10,205 million cubic feet. Practically no replenishment was received in the lake till 19th July, when heavy rains fell in the catchment area and the water level began to rise. It reached the sill of the waste weir gates (135 feet) on 27th July and a height of 140 feet on 30th July. Thereafter the level had to be controlled by opening the automatic and rolling gates until 13th August. The full supply depth of 143 feet was attained on 22nd August, when the contents were 24,198 million cubic feet and was maintained till 12th October, when the draw-off for irrigation commenced. There was no abnormal flood during the year under report. The total flood discharge passed through the waste weirs and turbine sluices, etc., between 30th July and 12th October was 26,169·44 million cubic feet against 17,337·52 million cubic feet of the last year. On 31st March, the level of water in the lake was 117·82 feet above the sill of the under-sluices, the corresponding contents being 15,027·41 million cubic feet.

31. The water level in the Shetphal tank reached its lowest depth of 26·80 feet on 3rd June, the corresponding contents being 267·61 million cubic feet. Replenishment from the canal commenced on 4th June and the water in the tank reached its highest depth of 36·60 feet on 18th November, the corresponding contents being 557·50 million cubic feet.

32. The following table shows the area irrigated, revenue assessed, working expenses, etc., during the year as compared with the average of the past three years.—

Area irrigated		Assessment		Gross assessment	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
67,999	78,083	9,10,109	9,68,846	9,18,629	9,79,669

Working expenses		Realisations		Rainfall	
1928-29	Average	1928-29	Average	1928-29	Average
Rs.	Rs.	Rs.	Rs.	Inches	Inches
3,23,253	2,83,221	10,28,106	8,92,110	23·20	17·82

33. The area of sugarcane and other perennial crops including adsalis up to 6 months was 11,968 acres against 12,993 acres, the average of the past three years. The decrease in the perennial area was due to cancellation of some of the perennial block area caused by the unsteady "gul" market, refusal to sanction overlapping cane when the period of overlap was expected to exceed 4 months and to stricter enforcement of the block rules. The decrease in the total area irrigated was mainly due to cancellation of a large number of two seasonal blocks owing to favourable rains, which reduced the demand for monsoon as well as rabi water for seasonal crops.

34. The refunds of revenue granted during the year and the remissions sanctioned amounted to Rs. 605 and Rs. 13 respectively. The increase in working expenses is partly due to rise in expenditure on establishment and pensionary charges. The cost of measuring establishment for measuring 51,821 acres amounted to 9 pies per acre against 8 pies of the preceding year.

35. The length of the Nira Left Bank Canal is 100¼ miles and that of the Shetphal Channel 6½ miles. The perennial section of the canal remained the same as in the previous year, viz., up to mile 70 and that of the Shetphal Channel extended up to and included outlet No. 19.

The work of sanctioning perennial blocks in the tail portion of the perennial section of the canal was in progress during the year under report. The area of perennial blocks amounted to 19,627 acres on the canal and 1,230 acres on the channel against 20,312 and 1,257 acres respectively of the previous year. The areas of 8 months' blocks or rabi leases sanctioned on the canal and the channel were 20,455 acres and 1,852 acres respectively against 26,298 and 2,803 acres of the previous year. The development of the new perennial section has not been as brisk as was expected owing to slump in the gul rate and the general unsteadiness of the gul market. Some of the area under perennial blocks in the old perennial section of the canal was also cancelled during the year for the same reasons with the result that the area under perennial blocks has decreased. The decrease in the two-seasonal block area has been occasioned by cancellations on a large scale due to plentiful rainfall during the previous two years. The rainfall during the year under report was also favourable and there was accordingly no demand for new leases or renewals of cancelled leases.

36. The designed discharge of the Nira Left Bank Canal at the head as originally constructed was 456 cusecs per second and that at tail 91 cusecs per second. The remodelling of the canal when completed will provide for a discharge of 721 cusecs being carried. The designed discharge of the Shetphal Channel is 62 cusecs at head.

LAKE WHITING AND MALSIRAS DIVISIONS

The Lloyd Dam at Bhatgar and The Nira Right Bank Canal

37. This irrigation scheme, which provides supply also for the remodelled Nira Left Bank Canal, is by far the largest so far constructed in the Bombay Deccan. Though the Nira Right Bank Canal depends for its supply upon a storage (Lake Whiting) 32 miles from Poona, and passes through the northern tracts of the Satara Collectorate and the Phaltan State, it benefits mainly the western portion of the Sholapur Collectorate, a tract notoriously liable to famine.

38. The construction of the Lloyd Dam and the Nira Right Bank Canal was started in 1912. Irrigation was commenced from the canal in 1924-25. The Lloyd Dam was completed in 1928 at a cost of Rs. 172 lakhs. It supplies the remodelled Left Bank Canal and the new Right Bank Canal, both of which take off from the pick-up weir at Vir, some 17 miles below Bhatgar. The Right Bank Canal ends near Mohod in Sholapur Collectorate, its total length being about 106½ miles. The old Bhatgar Dam is now submerged in the lake formed by the Lloyd Dam. Practically all deep cuttings and high banks upto mile 106½ of the Right Bank Canal have been completed. The progress on distributaries and branches is satisfactory and in accordance with the programme.

39. The total estimated cost of the Lloyd Dam and the Nira Right Bank Canal is Rs. 4,91,10,860 inclusive of all charges. The estimated

cost of works alone is Rs. 3,83,84,335. The expenditure incurred on the project upto the end of the year under report is as under :—

	During the year 1928-29	Total up to date
	Rs.	Rs.
The Lloyd Dam	46,590	1,18,86,673
The Nira Right Bank Canal	6,72,952	1,67,97,730
Establishment, tools and plant, supense account, etc.	4,23,598	78,82,702
Less receipts on capital account ..	—17,094	—1,65,065
Total ..	11,26,046	3,64,02,040

40. The Nira Valley Development Project was sanctioned by the Secretary of State for Rs. 6,85,97,828 and contains proposals for remodelling the Nira Left Bank Canal and for constructing an additional storage at Vir to supplement that in Lake Whiting, as additional storage may be required when the two canals are fully developed. In view, however, of the slump in sugarcane industry and possible economies in the use of water, it is probable that a smaller storage at Vir may suffice for many years to come.

41. The yield from the catchment of Lake Whiting (128 square miles) was 40,746 million cubic feet, the average of the several rain gauge readings being 161·23 inches. The following table gives the results of irrigation, revenue, etc, during the year as compared with the average of the past three years :—

Area irrigated		Assessment		Gross assessment	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
14,168	20,476	1,25,769	1,33,779	1,29,795	1,34,999

Working expenses		Realisations		Rainfall	
1928-29	Average	1928-29	Average	1928-29	Average
Rs.	Rs.	Rs.	Rs.	Inches	Inches
2,30,511	84,657	1,06,970	81,197	21·99	14·11

The decrease in the area irrigated is due to timely rainfall, which caused less demand for kharif and rabi water.

42. Irrigation on this canal was started in 1924-25. Since then it has been noticed that the cultivators are not very keen to develop their lands by using canal water to grow crops, as owing to frequent famines in the past their financial position has become very bad, and they are unable to raise capital on credit to improve their lands. Cultivators from outside have not as yet established themselves on this canal owing probably to the slump in the gul market. These circumstances are hindering the progress of development in agriculture on this canal. The Director of Agriculture has drawn up a scheme for developing scientific agriculture on the canal and it is hoped that successful results may be obtained.

43. The remissions sanctioned during the year amounted to Rs. 72 and the refunds of revenue amounted to Rs. 6. The cost of measuring establishment was Rs. 1,040, which gives a rate of 1 anna and 3 pies per acre against 1 anna and 2 pies per acre in the previous year.

Storage Works with Deccan Catchment

Mhaswad Tank

44. Though the catchment area of this tank is 480 square miles the supply is very unsatisfactory owing to the precarious character of the rainfall. On 1st April, the level of water in the tank was 18·64 feet above the sill, the corresponding contents being 1,744 million cubic feet. Replenishment began in the middle of June, thus making it possible to irrigate an area of 709 and 2,914 acres during the hot weather and monsoon seasons respectively. Before the commencement of the rabi season the level of water rose to its full height of 24 feet above the sill of outlet, the corresponding contents being 2,601·17 million cubic feet, and the waste weir began to overflow on the 28th September. As there was timely and good rainfall in the rabi season, the crops were in good condition.

45. The average of the several rain gauge readings in the catchment (480 square miles) was 20·06 inches and the run-off amounted to 10,437 million cubic feet. The average rainfall in the canal tract was 25·20 inches. The following table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated		Assessment		Gross assessment	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
5,999	6,073	45,695	40,419	50,165	60,248

Working expenses		Realisations		Rainfall	
1928-29	Average	1928-29	Average	1928-29	Average
Rs. 19,656	Rs. 16,566	Rs. 43,826	Rs. 55,907	Inches 25·20	Inches 19·94

46. The small decrease in the area irrigated is due to timely rainfall in the canal tract and consequently less demand for canal water. The increase in the assessment is due to the enhanced water rates enforced with effect from February 1927. The decrease in the gross assessment is partly due to the loss of revenue from the lands in the tank-basin, which remained submerged and could not be cultivated.

47. The designed discharges of the canals Nos. I and II at head are 180·70 and 176·93 cusecs, respectively, with full supply depths of 4 feet, and the designed discharges at the tails of the two canals are 180 and 125·76 cusecs with depths of 3 and 4 feet respectively. It is intended to utilise the discharge available from the canals to supplement the discharge at the tail of the Nira Right Bank Canal (Branch No. 3) when it is ready to take it. The Mhaswad canal system will then cease as a separate entity and will be merged in the Nira Right Bank Canal system.

48. The refunds of revenue sanctioned amounted to Rs. 193 and the remissions to Rs. 133. The cost of the measuring establishment was 3 pies per acre, the same as in the previous year.

MUTHA CANALS DIVISION

Works with Ghat Storage

Mutha Canals including Matoba Tank

49. On 1st April, the level of water in Lake Fife at Khadakwasla was 21·50 feet above the sill of the canal sluices, the corresponding contents being 1,839·5 million cubic feet. The lowest level of 9·45 feet was reached on the 25th June, the contents being 679·95 million cubic feet. Thereafter replenishment commenced and the maximum flood occurred on the 4th September, when water was at its full supply level of 34 feet, the corresponding contents being 3,643 million cubic feet. The draw-off from the storage commenced on 5th October, when water was at its full supply level of 34 feet. On the 31st March, the level was 21·95 feet on gauge, the corresponding contents being 1,892·15 million cubic feet.

The average of the readings of the several rain gauges in the catchment of the lake (196 square miles) was 147·51 inches. The rainfall in the canal tract was 21·28 inches. Though the monsoon started late, it was on the whole favourable as compared with the average of the previous three years.

50. The Matoba tank, which is a small tail tank, dried up on the 11th May and remained empty till the middle of July, when regular replenishment from the Mutha Right Bank Canal commenced, and the tank reached its full supply level of 29 feet on the 15th September, the contents being 216·55 million cubic feet. Water was issued for irrigation of monsoon and rabi crops, and the tank finally ran dry on the 9th April.

51. The following table gives the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated		Assessment		Gross assessment	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
13,738	19,296	2,41,409	2,46,813	3,72,084	3,68,874

Working expenses		Realisations		Rainfall	
1928-29	Average	1928-29	Average	1928-29	Average
Rs.	Rs.	Rs.	Rs.	Inches	Inches
1,37,281	1,52,728	3,02,269	3,98,717	21·28	18·58

The decrease in the area irrigated and the assessment is due to good and timely rainfall during both the monsoon and rabi seasons, which caused less demand for canal water. The increase in the gross assessed revenue is due partly to larger receipts from the Poona City Municipality and the Poona Water Works and partly to larger receipts from the sale of water and canal produce.

52. There are no perennial blocks on the Mutha Canals, but a proposal to introduce them is under consideration. The area of two seasonal leases under these canals and that under the Matoba tank during the year under report were 94 and 1,700 acres respectively.

53. No refunds of remissions of revenue were sanctioned during the year. The cost of the measuring establishment was Rs. 1,138, which gives a rate of about 1 anna and 4 pies per acre against 1 anna and 7 pies per acre in the previous year.

54. The quantity of water supplied from the Mutha Right Bank Canal to the Poona Cantonment and the Poona City Municipality was 1,027,860,438 and 2,199,025,100 gallons, respectively, the corresponding revenue being Rs. 32,892 and Rs. 70,369. The figures for the preceding year were 1,006,387,506 and 2,086,888,500 gallons and Rs. 32,204 and Rs. 66,781, respectively.

Storage works dependent on local rains

Kasurdi Tank

55. This tank, which had remained empty since 26th November 1927, received replenishments on the 7th June, 12th July and the 15th September. It reached its full supply level of 17·46 feet on the 18th September, the contents being 9·14 million cubic feet, and overflowed on the same date, the overflow lasting for one day only. Water was issued for irrigation of rabi crops and the tank finally dried up on the 2nd January.

Shirsuphal Tank

56. This tank, which had not dried up during the previous year, received its first replenishment on the 7th June. It received another replenishment on the 1st July and again from 14th September to 19th October, when the highest level of 27·79 feet was reached against the full supply level of 31 feet, the contents being 252·64 million cubic feet. Water was issued for irrigation of both kharif and rabi crops. The tank did not dry up during the year. The area of two seasonal leases sanctioned under the tank was about 555 acres.

Bhadalwadi Tank

57. This tank, which had not dried up during the previous year, received its first replenishment on the 7th June. It received another replenishment on the 28th June and reached its full supply level of 35 feet, the contents being 190·74 million cubic feet. The tank overflowed four times from 28th to 30th June, 16th to 30th September, 1st to 31st October and from 1st to 11th November. A few acres of rabi crops were irrigated; the tank did not dry up during the year.

58. The subjoined table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Name of tank	Area irrigated		Assessment		Gross assessment	
	1928-29	Average	1928-29	Average	1928-29	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Kasurdi ..	54	33	249	85	4,422	841
Shirsuphal ..	547	810	3,757	4,265	4,273	5,289
Bhadalwadi ..	18	1,151	70	6,144	486	6,411

Name of tank	Working expenses		Realisations		Rainfall	
	1928-29	Average	1928-29	Average	1928-29	Average
	Rs.	Rs.	Rs.	Rs.	Inches	Inches
Kasurdi ..	1,409	1,396	4,242	829	21·20	12·49
Shirsuphal ..	28,144	7,578	5,110	5,520	16·88	16·25
Bhadalwadi ..	4,401	6,067	9,567	4,101	20·31	16·45

The increase in the area irrigated and the consequent increase in irrigation assessment will be noticed in the case of Kasurdi tank only, where people applied for water and the supply was sufficient. The decrease in the area irrigated and the irrigation assessment in the case of the other two tanks is due to the deliberate cancellation of the two-seasonal leases by the irrigators as a protest against the enforcement of enhanced water rates. The question of reduction of these water rates is under consideration.

PRAVARA CANALS DIVISION

Works with Ghat Storage

Godavari Canals

59. On Ist April, the level of water in Lake Beale was 53·78 feet above the sill of outlet, the corresponding contents being 4,489·41 million cubic feet. The lowest level of 34·22 feet above the sill of sluices was reached on the 4th July, when the first replenishment was received and the waste weir overflowed on the 22nd July. The quantity of water stored for irrigation was 7,418·14 million cubic feet, corresponding to a depth of 64 feet. The draw-off for irrigation commenced on the 9th November and the level gradually went down to 51·80 feet by the 31st March, the contents being 4,034·37 million cubic feet. Seven acres were irrigated on leakage water from the lake and the irrigation revenue derived therefrom was Rs. 79.

60. The yield from the catchment of the lake (156 square miles) was 28,761 million cubic feet, the average of the several rain-gauge readings being 66·43 inches. The rainfall in the canal tract was 18·94 inches. Its distribution over the period was not very satisfactory. There were showers in June but none in May, and the monsoon being late, the time left for plantation of kharif crops was not sufficient. Rainfall was fairly satisfactory from July to October. There was no rain in November and consequently there was a rush of water applications for the rabi seasons. The year proved to be a bad one at its close owing to the setting in of severe frost. Relief by way of suspensions and remissions was granted, where necessary.

61. The following table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Name of work	Area irrigated		Assessment		Gross assessment	
	1928-29	Average	1928-29	Average	1928-29	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Lake Beale ..	357	415	1,411	1,618		
Godavari Right Bank Canal.	15,697	20,610	275,935	324,592	4,76,720	5,62,113
Godavari Left Bank Canal.	9,775	10,562	178,955	196,333		

Name of work	Working expenses		Realisations		Rainfall	
	1928-29	Average	1928-29	Average	1928-29	Average
	Rs.	Rs.	Rs.	Rs.	Inches	Inches
Lake Beale ..	3,34,523	3,38,094	6,03,662	5,23,837	..	..
Godavari Right Bank Canal.					18·54	17·56
Godavari Left Bank Canal.					19·35	18·22

The decrease in the area irrigated and the consequent decrease in irrigation assessment and the gross assessed revenue on the whole Godavari system is due to the cancellation of the area in blocks on account of the slump in sugarcane industry.

62. The Godavari Right and Left Bank Canals are designed to discharge 384 and 228 cusecs at head, with full supply levels of 7 and 6 feet respectively; and the tail discharges are 114·41 and 35 cusecs with full supply depths of 5 and 3 feet respectively.

63. The cost of measuring establishment amounted to Rs. 1,062, which works out to 8 pies per acre against 6 pies per acre in the previous year. The refunds of revenue sanctioned amounted to Rs. 153. There were no remissions.

64. There are at present 15,194 acres under perennial blocks under this system (Godavari Right Bank Canal—8,562 acres and Godavari Left Bank Canal—6,632 acres), and two-seasonal leases have been introduced recently.

Pravara River Works

65. On 1st April, the level of water in Lake Arthur Hill at Bhandardara was 223·35 feet above the sill of outlet, the corresponding contents being 5,156 million cubic feet. The lowest level was reached on the 3rd July, viz., 179·95 feet above the sill of outlet with 2,077 million cubic feet of water, when the first replenishment was received, and the lake filled sufficiently to overflow the waste weir on the 7th July. The maximum depth of flood above the crest of the waste weir occurred on the 31st August and was 3·50 feet; water stopped overflowing on the 17th October. The water level maintained above the sill of the lowest sluice was 210 feet, representing a volume of 10,086 million cubic feet. The draw-off for irrigation from the storage commenced on the 14th October, and by 31st March the level went down to 227·90 feet above the sill of outlet, representing a volume of 5,561 million cubic feet. The waste weir at Bhandardara is a surplussing weir, and no gates have yet been installed there. By the erection of automatic gates on the waste weir, the present storage can be increased to 12,092 million cubic feet.

66. The yield from the catchment of the lake (47 square miles) was 35,338 million cubic feet, the average of the several rain-gauge readings being 132·45 inches. The rainfall in the canal tract was 26 inches. There was a very good rainfall in September, which resulted in a low demand of water for rabi crops. The crops all over the canal area were greatly damaged by severe frost.

67. The designed discharges of the Pravara Right and Left Bank Canals at head are 152·62 and 530·00 cusecs respectively, the corresponding full supply levels being 5 and 8 feet; and the designed discharges at tail are 81·79 and 102 cusecs respectively, the full supply levels being 3 feet in both cases.

68. The following table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

	Area irrigated		Assessment		Gross assessment	
	1928-29	Average	1928-29	Average	1928-29	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Pravara Right Bank Canal.	9,131	11,665	1,41,318	1,68,712	5,78,028	6,48,431
Pravara Left Bank Canal.	22,901	23,396	4,20,725	4,66,103		

	Working expenses		Realisations		Rainfall	
	1928-29	Average	1928-29	Average	1928-29	Average
	Rs.	Rs.	Rs.	Rs.	Inches	Inches
Pravara Right Bank Canal.	3,40,116	3,03,175	6,00,062	6,33,464	25·74	17·08
Pravara Left Bank Canal.					26·21	18·31

The decrease in the area irrigated and the consequent decrease in assessment is due partly to timely rainfall in the area of seasonal crops and partly to the introduction of block system on both the canals, which reduced the perennial area under irrigation, as the system is not very popular.

69. The refunds of revenue sanctioned amounted to Rs. 3,068 and the remissions to Rs. 100. The cost of measuring establishment amounted to Rs. 1,073, which gives a rate of 6 pies per acre, the same as in the previous year.

NASIK IRRIGATION DIVISION

Works with Ghat Storage

CHANKAPUR TANK—GIRNA LEFT BANK CANAL

70. The Chankapur Dam on the Girna river forms the storage reservoir for the Girna Left Bank Canal. On 1st April, the water level in the lake was 84·98 feet above the sill of the lowest outlet, the corresponding contents being 1,152 million cubic feet. The level had fallen to 52·7 feet by the 15th July, when replenishment began to be received. The level gradually rose to the full supply level of 92 feet on the 26th September, the contents being 1,548 million cubic feet and the draw-off for irrigation commenced on the 21st October. The level on the 31st March was 83·04 feet above the sill of outlet, the corresponding contents being 1,085 million cubic feet. A portion of the water supply was also used for feeding the bandharas on the Girna river.

71. The run-off from the catchment of the lake (100 square miles) was 3,196 million cubic feet, the average of the rain-gauge readings being 53·53 inches. The rainfall in the canal tract was 24·86 inches, which was good and sufficient.

72. The area irrigated in excess of the Kayam Bagayat during the kharif and rabi seasons under the several bandharas on the Girna river and in the bed of the river was 209 acres and the assessment Rs. 2,128 against 283 acres and Rs. 2,479 respectively of the previous year.

73. The following table gives the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated		Assessment		Gross assessment	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
5,134	8,310	47,228	48,537	48,388	49,513

Working expenses		Realisations		Rainfall	
1928-29	Average	1928-29	Average	1928-29	Average
Rs.	Rs.	Rs.	Rs.	Inches	Inches
57,501	57,713	38,525	43,349	24·86	18·05

The decrease in the area irrigated and the consequent decrease in the irrigation revenue and the gross assessed revenue is due to good and seasonal rainfall.

74. The refunds of revenue sanctioned amounted to Rs. 15. There were no remissions. The cost of measuring establishment amounted to Rs. 561½, which gives a rate of 1 anna and 9 pies per acre against 1 anna and 10 pies per acre in the previous year. The high cost of measurement is due partly to the cost of labour and partly to the scattered nature of irrigation.

Kadwa River Works

75. The Waghad tank is the storage for the Palkhed, Ojhar Tambat and Wadali Canals. On 1st April, the depth of water in the tank was 40·10 feet above the sill of outlet, the corresponding contents being 382 million cubic feet. The level then went down gradually until it reached 30 feet above the sill of outlet by the 25th June, the contents being 190 million cubic feet, when the tank began to receive regular replenishment, and the height of water rose to the full supply level of 48 feet on the 30th August. The maximum depth of flood above the crest of the waste weir was 8 feet on the 30th August. The automatic waste weir gates were finally closed on the 9th October, and the full supply level was maintained, equivalent to a volume of 606 million cubic feet. Regular draw-off for irrigation from the storage commenced on the 9th October, and 40·40 feet depth of water in the tank above the sill of outlet was reached on the 31st March, the corresponding contents being 391 million cubic feet.

76. The run-off from the catchment of the tank (29 square miles) was 2,360 million cubic feet, the average of the rain-gauge readings being 47·75 inches. The rainfall in the canal tract was 25·34 inches on an average. The year on the whole was a favourable one. The monsoon opened well and the rainfall was timely.

77. The subjoined table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Name of work	Area irrigated		Assessment		Gross assessment	
	1928-29	Average	1928-29	Average	1928-29	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Palkhed Canal ..	1,131	2,153	19,997	21,006	51,150	42,969
Ojhar Tambat Canal	810	992	14,469	10,520		
Wadali Canal ..	717	981	11,797	8,464		
Waghad Tank ..	..	..	..	..		

Name of work	Working expenses		Realisations		Rainfall	
	1928-29	Average	1928-29	Average	1928-29	Average
	Rs.	Rs.	Rs.	Rs.	Inches	Inches
Palkhed Canal ..	41,509	55,396	33,887	48,024	25·34	21·32
Ojhar Tambat Canal						
Wadali Canal ..						
Waghad Tank ..						

The decrease in the area irrigated and the consequent decrease in assessment is due to timely and well-distributed rainfall and consequent less demand for canal water.

78. The refunds of revenue amounted to Rs. 17. There were no remissions. The cost of measuring establishment amounted to Rs. 304½, which gives a rate of 1 anna and 10 pies per acre against 1 anna and 3 pies per acre in the previous year. The high rate is due partly to the increased cost of labour and partly to the scattered nature of irrigation.

Storage Works with Deccan Catchment

Parsul Tank

79. This small tank depends solely on local rains for its supply and generally stores sufficient water for the monsoon and part of the rabi season. On 1st April, the level of water in the tank was 25·50 feet above the sill of outlet, the corresponding contents being 67 million cubic feet. The lowest level of 13·70 feet was reached on the 11th June, the corresponding contents being 23 million cubic feet, when replenishment commenced. Water was stored to the full supply level of 35 feet with a storage of 119 million cubic feet on the 19th September. The supply was drawn for irrigation from 28th October. On 31st March, the level reached was 22·60 feet, the contents being 54 million cubic feet.

80. The following table shows the results of irrigation, revenue, etc., during the year as compared with the average of the past three years :—

Area irrigated		Assessment		Gross assessment	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
1,318	1,201	9,076	5,451	9,270	5,714

Working expenses		Realisations		Rainfall	
1928-29	Average	1928-29	Average	1928-29	Average
Rs.	Rs.	Rs.	Rs.	Inches.	Inches.
2,264	2,029	7,865	4,214	24·09	12·02

The increase in the area irrigated and the consequent increase in irrigation and gross revenue is due to improved supply from the tank to rabi crops.

81. There were neither refunds nor remissions sanctioned during the year. The cost of the measuring establishment was 1 anna and 6 pies per acre against 1 anna and 10 pies per acre in the previous year.

SHOLAPUR DIVISION

Storage Works with Deccan Catchment.

82. The area irrigated, gross assessed revenue and the working expenses during the year for the four tanks in Sholapur Division as compared with the average of the preceding three years are given in the following statement :—

Name of tank	Area irrigated		Gross assessed revenue		Working expenses	
	1928-29	Average	1928-29	Average	1928-29	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Ekruk ..	3,947	3,790	1,25,417	1,31,627	26,510	25,397
Koregaon ..	498	369	2,493	2,073	1,933	4,541
Ashti ..	4,116	4,055	26,407	25,252	13,114	10,850
Pathri ..	1,050	1,099	14,097	12,347	3,812	6,258

The increase in the area irrigated under the Ekruk, Koregaon and Ashti tanks during the year was due to better demand for water, while the decrease under the Pathri tank was due to less demand for water. In the case of Ekruk tank there was decrease in revenue in spite of the increase in area irrigated, and this was due to less consumption of water by the Great Indian Peninsula Railway and the Mills. In the case of Pathri tank there was increase in revenue in spite of the decrease in area irrigated, and this was due to miscellaneous receipts realised from the sale of canal produce.

Ekruk Tank

83. On 1st April, the tank registered 30·13 feet of water above the sill of the lowest outlet. The level fell gradually till it reached 27·53 feet on 6th June. This level was sufficiently high to provide for two successive bad years after allowing for irrigation of kharif crops. The tank received good replenishment between June and September and the waste weir began to overflow on 29th September, when the level of the tank was 39·90 feet above the sill of the lowest outlet. The mean rainfall gauged at five stations in the catchment of the tank (159 square miles) was 29·19 inches and the total replenishment received in the tank was 4,762·58 million cubic feet.

Koregaon Tank

84. On 1st April, the level of water in the tank was 10·96 feet over the sill of the outlet. The level fell to 8·28 feet by 7th June. The tank received good replenishment in September and the waste weir began to overflow on 7th October. The storage was fully utilised in meeting the demands of lease-holders for rabi irrigation. The rainfall gauged at Koregaon was 23·53 inches, and the total replenishment received in the tank was 107·54 million cubic feet.

Ashti Tank

85. On 1st April, the level of water in the tank was 12·49 feet over the sill of the outlet. The level fell to 10·19 feet by 6th June. With the replenishment received between 25th September and 13th October the level rose to 22·30 feet. The storage was utilised in meeting the demands of rabi lease-holders. The waste weir did not overflow during the year. The mean rainfall gauged at two stations in the catchment area of the tank (92 square miles) was 28·03 inches and the total replenishment received was 1177·06 million cubic feet.

Pathri Tank

86. On 1st April, the level of water in the tank was 28·94 feet over the sill of the outlet. The level gradually went down till it reached 26·42 feet by 5th June. Replenishments were received in June and the waste-weir began to overflow on 1st July. The storage was utilised in meeting the demand of irrigators for 215 acres of kharif crops. The mean rainfall gauged at two stations in the catchment area of the tank (27·5 square miles) was 28·11 inches, giving a total replenishment of 1015·19 million cubic feet.

AHMEDNAGAR DIVISION

Storage Works with Deccan Catchment

Bhatodi Tank

87. This is a small tank situated on the Mehekari river about 12 miles from Ahmednagar. It has a present reduced capacity of about 57 million cubic feet due to silting. It depends entirely on local rains for its supply, which generally suffices for the monsoon and part of the rabi season.

88. The total rainfall during the year was 36·69 inches. The tank received first replenishment on 7th June. The highest level reached during the year was R.L. 95·00 on 16th September, when the tank overflowed. The area irrigated, gross assessed revenue and the working expenses during the year as compared with the average of the preceding three years are given below :—

Area irrigated		Assessment		Working expenses	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
943	630	8,640	8,547	4,965	4,536

EAST KHANDESH DIVISION

Works without storage but on rivers with Ghat Catchment

JAMDA CANALS

89. The source of supply of these canals is the Girna river supplemented from time to time by water from the Chankapur tank. On 1st April, the discharge of the Girna river at Wadgaon above the Jamda bandhara was 67 cusecs, which went down to 11 cusecs on 20th April. The first flood came down the river on 1st June and the highest flood occurred on 18th September, when the depth of water over the crest of the Jamda weir rose to 3·70 feet.

90. The sub-joined statement shows the area irrigated, gross assessment and working expenses during the year as compared with the average of the preceding three years :—

Area irrigated		Assessment		Working expenses	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
924	1,130	11,254	9,842	11,084	10,936

91. The decrease in area irrigated was due to less demand for canal water in both the seasons, the rainfall being seasonal and well-distributed. The increase in gross assessed revenue was due to large realisations from the sale of mango fruit.

Storage Works with Deccan Catchment

HARTALA TANK

92. On 1st April, the water level in the tank stood at R.L. 84·03, the contents being 24 million cubic feet. The level went down to zero by 9th May. The first replenishment was received on 10th June and the maximum water level reached was R.L. 85·85 on 2nd October, representing a capacity of 30·70 million cubic feet. The rainfall during the year was 29·29 inches against 32·26 inches of the previous year.

MHASWA TANK

93. On 1st April, the water level in the tank stood at R.L. 146·42, the contents being 85·01 million cubic feet. The level went down to R.L. 143·64 by 10th June, the contents being 56·12 million cubic feet. The first replenishment was received on 12th June and the maximum level was reached on 18th September, when water in the tank rose to R.L. 152, representing a volume of 172·40 million cubic feet. The rainfall was 26·85 inches against 21·25 inches of the previous year.

94. The area irrigated on the Hartala and Mhaswa tanks, gross assessment and the working expenses during the year as compared with the average of the preceding three years are given in the following statement :—

Name of tank	Area irrigated		Gross assessed revenue		Working expenses	
	1928-29	Average	1928-29	Average	1928-29	Average
	Acres	Acres	Rs.	Rs.	Rs.	Rs.
Hartala tank ..	72	25	1,127	1,203	923	865
Mhaswa tank ..	215	553	2,283	2,838	1,856	1,808

The increase in area irrigated on the Hartala tank was due to greater demand for water in the kharif season, while the decrease on the Mhaswa tank was due to less demand for canal water in both the seasons, the rainfall being seasonal and well-distributed.

WEST KHANDESH DIVISION

Works without storage depending on local rain

Shahada Channel

95. The channel is fed by the Gomai river which is perennial. There is no rain-gauge installed at the channel head. The rainfall at Shahada during the year 1928 was 24·07 inches. The following table shows the area irrigated, gross assessment and working expenses during the year as compared with the average of the preceding three years :—

Area irrigated (Jirayat)		Gross assessed revenue		Working expenses	
1928-29	Average	1928-29	Average	1928-29	Average
Acres	Acres	Rs.	Rs.	Rs.	Rs.
458	846	2,475	5,360	6,147	6,439

The decrease in the area irrigated was due to less demand for water during both the kharif and rabi seasons, as the rainfall was seasonal. The area irrigated under the Patasthal Bagayat (under settlement) was 1,244 acres, and the irrigation share of the assessment was Rs. 6,157.

Works depending on river supply from Ghat Catchment supplemented by a tank with Deccan Catchment

Lower Panjhra River Works

96. The source of supply of these works is the river Panjhra, supplemented by the Mukti tank, when the supply in the river falls short of requirements. On 1st April, the contents of the tank were 251·82

million cubic feet, which fell to 181·83 million cubic feet before the first replenishment was received on 14th June. The full supply level was reached on 20th July, when the contents were 320 million cubic feet, and the waste weir overflowed for eight days. The mean rainfall gauged in the catchment of the tank at Dahyana and Sadgaon was 32·07 inches.

97. The following table shows the area irrigated, gross assessment and working expenses during the year as compared with the average of the preceding three years :—

Area irrigated		Gross assessed revenue		Working expenses	
1928-29	Average	1928-29	Average	1928-29	Average
Acres 2,869	Acres 2,283	Rs. 25,742	Rs. 25,152	Rs. 6,524	Rs. 8,888

The area irrigated shows an increase, as the figures for 1926-1927 were unusually small due to the limited supply in the Mukti tank for want of sufficient replenishment.

SATARA DIVISION

98. The area irrigated, gross assessed revenue and the working expenses for the six works mentioned below during the year, as compared with the average of the preceding three years, are given in the following statement :—

Name of work	Area irrigated		Gross assessed revenue		Working expenses	
	1928-29	Average	1928-29	Average	1928-29	Average
1. Krishna Canal.	Acres 4,847	Acres 8,703	Rs. 63,204	Rs. 66,750	Rs. 30,118	Rs. 25,043
2. Rewari Canal ..	777	425	3,829	1,973	2,766	2,254
3. Upper Man River Works.	1,376	976	6,307	4,392	7,241	12,094
4. Yerla River Irrigation Works	3,912	4,877	18,851	21,045	68,710	41,785
5. Chikhli Canal ..	245	386	1,938	1,556	2,079	985
6. Maini Tank ..	1,705	1,999	6,685	8,965	5,228	4,622

The decrease in the area irrigated under the Krishna Canal, Yerla River Irrigation Works, Chikhli Canal and Maini Tank was due to timely and well-distributed rainfall in both the kharif and rabi seasons. The increase under the Rewari Canal and Upper Man River Works was due to greater demand for water in both the kharif and rabi seasons owing to fitful rainfall. The increase in working expenses on the Yerla River Irrigation Works was due to an expenditure of Rs. 32,040 on repairs to the dam. The increase in revenue in the case of Chikhli Canal in spite of the decrease in area irrigated was due to miscellaneous receipts realised from the sale of aloe leaves on the canal.

River Supply with Ghat Catchment

Krishna Canal

99. The rainfall gauged at Retre Budruk was 22·17 inches against 21·01 inches, the average of the past five years. Owing to good rainfall, the supply in the river was sufficient to meet the demands of the irrigators.

Works with Deccan Catchment

Rewari Canal

100. The rainfall gauged at Rewari was 23·65 inches against 21·77 inches, the average of the past five years. The supply of water, which was 4·60 cusecs in April, increased from June to August and went down from October to end of March.

Upper Man River Works

101. The rainfall gauged at Gondowla was 21·58 inches against 12·79 inches, the average of the past five years. On 1st April, the level of water in the Pingli tank was at R.L. 2361·01, the contents being 39·33 million cubic feet. This supply was utilised for hot weather and perennial irrigation till 5th June, when the first replenishment was received. A second replenishment was received on 29th June, and the highest level reached during the year was at R.L. 2370·51 equivalent to a quantity of 148·70 million cubic feet.

Yerla River Irrigation Works

102. The rainfall gauged at Khatgaon was 25·68 inches against 18·85 inches, the average of the past five years. On 1st April, the contents in the Nehr tank were 222·36 million cubic feet. The first replenishment was received on 4th June, when the level reached was R.L. 2656·82 equivalent to a volume of 186·50 million cubic feet. Further replenishments were received and the tank was full on 23rd September, when the water level was at R.L. 2666·02 equivalent to a quantity of 406·80 million cubic feet. Water flowed over the waste weir from 29th September to 1st October, when the level was at R.L. 2667·52.

Chikhli Canal

103. The rainfall gauged at Chikhli was 23·03 inches against 15·23 inches, the average of the past five years. On 1st April, there was a small flow of water in the river. Floods occurred on 7th and 28th April and subsequently there was constant flow in the river. The highest flood occurred on 7th October when the height of water reached was 7 feet.

Maini Tank

104. The rainfall gauged at Maini was 24·53 inches against 15·82 inches, the average of the past five years. On 1st April, there was very little supply in the tank, and so water could not be issued for hot weather

irrigation. The first replenishment was received on 6th August, when the height of water reached to R.L. 2301·52 equivalent to a volume of 31·4 million cubic feet. Further replenishments were received till 16th September, when the contents of the tank were 75 million cubic feet. Water flowed over the waste weir from 16th September to 17th November. The highest level reached was R.L. 2306·02.

DHARWAR DIVISION

Deccan Catchment

Muchkundi Tank

105. The Muchkundi tank is the only first class irrigation work in the Dharwar Division. It depends entirely on local rains. Due to the precarious rainfall and the smallness of the catchment area the supply in the tank is unreliable. The tank was dry from 1st April to 7th June, when continuous showers for three days replenished it to R.L. 1788·30. Good showers continued till October and raised the water level gradually to R.L. 1794·82, the highest level being reached on 20th October. Thereafter though the level came down, the tank did not dry up till after 31st March, when the level was at R.L. 1789·80.

106. The area irrigated and the assessment during the year were 57 acres and Rs. 247 respectively. The miscellaneous revenue amounted to Rs. 4 only against Rs. 5,025 in the previous year. The decrease was due to the fact that the right to cultivate the tank-bed had been leased for three years and proceeds to the extent of Rs. 4,700 were already realised in the previous year. Moreover, the land below 6 feet contour was not leased for cultivation, as there was about 8 feet of water in the tank. The total working expenses amounted to Rs. 1,670 and the realisations to Rs. 113. The operations of the year resulted in a net loss of Rs. 1,419, i.e., 0·89 per cent. on the capital outlay of Rs. 1,58,707 against 1·43 per cent. profit of the previous year.

DHARWAR IRRIGATION DIVISION

Deccan Catchment

Gadikeri Tank

107. On 1st April, the level of water in the tank was at R.L. 45·60, i.e., 4·80 feet above the outlet-sill. The tank received no fresh supply till 3rd June when the water level was at R.L. 43·02, which rose to R.L. 45·56 on 30th August. The tank practically remained dry from 12th January.

108. The lands under this tank are assessed at consolidated rates. The area irrigated during the year and the irrigation share of revenue were 407 acres and Rs. 2,356 respectively. There were no miscellaneous receipts. The working expenses amounted to Rs. 380 against

Rs. 310 of the previous year. The operations of the year resulted in a net profit of Rs. 1,976, i.e., 11·68 per cent. on the capital cost of Rs. 16,918.

Ghat Catchment

Gokak Canal

109. On 1st April, the level of water in the reservoir at Dhupdal was 21·46 feet. As no replenishment was received till 1st June, the level came down to 15·60 feet. Gradual replenishment then commenced and the lake overflowed from 13th July to 4th September. The permanent crest was raised at the end of the monsoon and full supply up to the crest of the raised level, i.e., 26 feet was attained on 20th October.

110. The area irrigated during the year and the assessment thereon were respectively 9,747 acres and Rs. 66,220 against 9,918 acres and Rs. 64,851 of the previous year and 11,339 acres and Rs. 73,905, the average of the preceding three years. The decrease is due to a gradual decrease in rabi irrigation partly on account of the restriction of maize as a rabi crop and partly on account of the stoppage of water for rabi irrigation when the level of water goes down to 23·50 feet.

111. The miscellaneous receipts amounted to Rs. 19,633 against Rs. 19,564 of the previous year. The gross assessment was Rs. 85,853 against Rs. 84,415 in the preceding year, while the working expenses amounted to Rs. 13,542 against Rs. 13,510 of the previous year. The operations of the year resulted in a net profit of Rs. 72,311, giving a return of 4·93 per cent. on the capital cost of Rs. 14,66,167.

Deccan Catchment

Dambal Tank

112. The lands under this tank are assessed partly at consolidated rates and partly at water rates. The area irrigated and the irrigation assessment were 485 acres and Rs. 2,298 respectively. The area assessed at consolidated rates was 143 acres and the irrigation share of revenue was Rs. 916, giving an average rate of Rs. 6·39 per acre.

113. The total assessed revenue for the year was Rs. 3,978 including miscellaneous receipts (Rs. 764) against Rs. 3,896 of the previous year and Rs. 3,945 the average of the previous three years. The working expenses amounted to Rs. 727 against Rs. 715 of the previous year and Rs. 733, the average of the previous three years. The result of the year's working showed a net profit of Rs. 3,251 yielding a return of 5·08 per cent. on the capital outlay of Rs. 63,980.

Medleri Tank

114. On 1st April, the level of water in the tank was at R.L. 172·56, i.e., 7·50 feet above the sill level of the outlet. The tank received replenishment between 5th May and 26th October, when the level rose

to R.L. 178·00. There was no further replenishment and the level came down to R.L. 168·50 on 31st March.

115. The area irrigated during the year was 92 acres, that in the previous year being 50 acres. The gross assessment amounted to Rs.1,003 against Rs. 880 of the preceding year, while the working expenses were Rs. 1,108 against Rs. 2,898 of the last year. The result of the year's working showed a loss of Rs. 105.

Ghat Catchment

Madag Tank

116. On 1st April, the tank had about 2 feet of water above the sill of the outlet. The highest level which was reached on 28th July was at R.L. 1885·76, when water in the tank was 8·05 feet above the crest of the waste weir. At the close of the year the tank had 2·40 feet of water above the sill of the outlet.

117. The area irrigated and the assessment were 427 acres and Rs. 2,017 respectively, against 410 acres and Rs. 1,927 of the previous year and 442 acres and Rs. 2,018, the average of the past three years. The gross assessed revenue including miscellaneous receipts (Rs. 1,063) amounted to Rs. 3,080 against Rs. 2,259 of the previous year and Rs. 2,345 the average of the past three years. The working expenses during the year were Rs. 2,118 against Rs, 1,950 of the previous year and Rs. 1,972, the average of the preceding three years. The result was a net profit of Rs. 962 which is equivalent to a return of 0·57 per cent on the capital outlay of Rs. 1,67,598.

Deccan Catchment

Asundi Tank

118. On 1st April, the level of water in the tank was 3·86 feet above the bed, i.e., at R.L. 102·86, which with fitful replenishments rose to R.L. 107·25. At the close of the year the level was at R.L. 102·70.

119. The lands under this tank are assessed partly at water rates and partly at consolidated rates. The area irrigated and the irrigation assessment were 85 acres and Rs. 373 respectively against 72 acres and Rs. 545 of the previous year. The decrease in assessment was due to the irrigators having taken only a single watering in the kharif season. The area under consolidated assessment was 190 acres and the irrigation share of revenue was Rs. 686, which works out to a rate of Rs. 3·62 per acre. The gross assessed revenue including miscellaneous receipts (Rs. 108) was Rs. 1,167 against Rs. 1,796 for the previous year and Rs. 1,621, the average of the past three years. The decrease was due to decrease in the miscellaneous receipts, which depend on the number of trees, etc., available for sale. The working expenses amounted to Rs. 1,349 against Rs. 1,276 for the previous year and Rs. 1,244 the average of the last three years. The increase was due to increase in the cost of establishment. The year's working showed a deficit of Rs. 182.

Forest Catchment

Mavinkop Tank

120. On 1st April, the water level in the tank was at R.L. 105·20 (i.e., 5·20 feet above the sill level) and at R.L. 109·50 towards the end of July. At the close of the year the level was at R.L. 104·20.

121. The area irrigated under this tank is assessed at consolidated rates. The area irrigated during the year and the irrigation share of land revenue were 412 acres and Rs. 1,297 respectively against 572 acres and Rs. 1,732 of the previous year.

Ghat Catchment

Dharma Canal

122. This canal is fed by the Dharma river. Water was admitted into the canal on 15th June and the canal ceased to flow on 9th December. Although the monsoon was not favourable the distribution of water was managed judiciously.

123. The lands under the canal are assessed partly at water rates and partly at consolidated rates. The area irrigated and the assessment at water rates were 436 acres and Rs. 2,903 respectively against 401 acres and Rs. 2,692 for the previous year. The area irrigated under consolidated assessment was 5,227 acres and the irrigation share of land revenue amounted to Rs. 20,764 giving a rate of Rs. 3·97 per acre. The total assessed revenue from all sources (after deducting Rs. 23,156 to be credited to the old work) amounted to Rs. 551. The working expenses for the year amounted to Rs. 2,505 against Rs. 2,212 of the previous year and Rs. 2,734 the average of the past three years. The result was a loss of Rs. 1,954.

124. The following statement shows the rainfall gauged at the sites of works classed under the head "55" in the Southern Circle in the kharif and rabi seasons of 1928-29 as compared with the figures of rainfall of the previous year and the average of the last ten years:—

——	Dharma Canal Yekkambi	Muchkundi tank	Dambal tank	Medleri tank	Madag tank	Asundi tank	Gokak Canal Dhupdal
1928-29—	Inches	Inches	Inches	Inches	Inches	Inches	Inches
Kharif ..	58·04	10·46	7·63	11·95	14·75	8·25	14·49
Rabi ..	12·03	2·85	6·47	8·80	8·46	6·75	5·19
Total ..	70·07	13·31	14·10	20·75	23·21	15·00	19·68
Average of the last ten years.	77·77	11·51	13·43	14·89	23·39	18·45	16·76
1927-28—							
Kharif ..	69·63	8·10	13·02	12·01	15·35	7·65	11·97
Rabi ..	3·94	4·20	1·60	4·69	2·30	2·15	3·05
Total ..	73·57	12·30	14·62	17·60	17·65	9·80	15·02

These figures show the result of the rainfall gauged at the sites of the works and do not represent the rainfall figures for the whole of the catchments.

PART II

COMPRISING IRRIGATION WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT

GENERAL REMARKS

125. The whole area of irrigation under, and revenue due from works for which neither capital nor revenue accounts are kept in the Deccan and Gujarat as recorded in the register of these works are 2,82,690 acres and Rs. 9,21,074 respectively.

126. The following tables give by districts details of area irrigated, expenditure, revenue, etc., in respect of irrigation works on which expenditure, was incurred during the year.

TABLE 1.

Showing the area irrigated in the different districts in the Deccan and Gujarat and the consolidated revenue and water rates assessed and recovered during the year 1928-29 in respect of irrigation works classed under "works for which neither capital nor revenue accounts are kept" on which expenditure was incurred during the year:—

Collectorate	Number of works	Area irrigated	Revenue			Remarks
			Irrigation share	Land share	Total	
		Acres	Rs.	Rs.	Rs.	
Ahmedabad ..	121	3,719	(a) 10,391	20,018	30,409	(a) Includes Rs. 802 on account of water rates direct receipts.
Kaira	67	7,394	(b) 24,999	19,651	44,650	(b) Includes Rs. 4,531 on account of water rates direct receipts.
Panch Mahals ..	11	1,417	(c) 7,126	1,436	8,562	(c) Includes Rs. 6,438 on account of water rates direct receipts.
Surat	58	2,712	6,290	24,815	31,105	
Broach ..	7	241	456	1,742	2,198	
West Khandesh ..	4	478	(d) 2,988	258	3,246	(d) Includes Rs. 1,243 on account of water rates direct receipts.
East Khandesh ..	2	430	3,586	1,325	4,911	
Nasik	41	5,806	(e) 44,725	12,846	57,571	(e) Includes Rs. 1,622 on account of water rates direct receipts.
Poona	1	228	1,653*	..	1,653	*Water rates direct receipts.
Sholapur ..	1	945	3,809*	..	3,809	Do.
Satara	..	..	..	..	..	
Belgaum ..	54	4,036	17,836	4,459	22,295	
Dharwar ..	87	11,003	38,053	9,532	47,585	
Kanara	25	1,787	4,090	1,022	5,112	
Bijapur	1	13	104	78	182	
Ahmednagar ..	1	..	66*	..	66	*Water rates direct receipt.
Ratnagiri ..	1	211	827	..	827	
Total ..	482	40,510	1,66,999	97,182	2,64,181	

TABLE

Showing actual expenditure and receipts for the year 1928-29 on the nor revenue accounts are kept

Collectorate	Expenditure						
	Direct charges						
	Extensions and Improvements	Maintenance and Repairs	Establishment (including pensionary charges)	Tools and Plant	Total	Share of collection charges.	Grand Total
1	2	3	4	5	6	7	8
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Ahmedabad	3,740	1,48,045				1,039	
Kaira ..	4,517	57,639	49,971	3,208	2,90,036	2,500	2,94,599
Panch Mahals	4,581	18,935				424	
Surat ..	....	35,170				620	
Broach ..	....	5,203	8,496	546	49,415	46	50 090
West Khandesh.	27	2,217	789	87	3,120	212	3,332
East Khandesh.	....	499	137	19	655	350	1 014
Ahmednagar.	2,33,027	4,460	64,990	9,158	3,11,635	2	3,11,637
Nasik ..	3,164	25,322	26,530	1,004	56,020	4,359	60,379
Poona ..	48,737	4,728	97,106	1,882	1 ,52,453	50	1,53,256
	78	400	265	10	753		
Sholapur ..	....	2,012	551	78	2,641	114	2,755
Belgaum ..	1,326	14,985				1,784	
Dharwar ..	7,060	37,758				3,805	
Kanara ..	....	9,486	30,361	3,033	1,04,108	409	1,10.109
Bijapur ..	....	84				10	
Ratnagiri ..	15	....				83	
Total ..	3,06,272	3,66,943	2,79,196	19,025	9,71,436	15,825	9,87,261

II

irrigation works in the Deccan and Gujarat for which neither capital referred to in Table I.

Actual Receipts							
Direct Receipts		Total Direct Receipts	Indirect Receipts share of consolidated revenue	Grand Total Direct and Indirect Receipts	Refunds of Revenue	Gross Receipts less Refunds	Remarks
Water rates from Irrigation	Miscellaneous						
9	10	11	12	13	14	15	16
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
802	1,383	2,185	9,589	11,774	....	11,774	
4,531	6,450	10,981	20,468	31,449	....	31,449	
6,438	980	7,418	688	8,106	....	8,106	
....	....		6,290	6,290	....	6,290	
....	....		456	456	....	456	
1,243	137	1,380	1,745	3,125	....	3,125	
....	..	..	3,586	3,586	....	3,586	
66	..	66	....	66	....	66	
1,022	179	1,201	43,103	44,904	....	44,904	
1,653	11	1,664	....	1,664	....	1,664	
3,800	221	4,030	....	4,030	....	4,030	
....	31	31	17,836	17,867	....	17,867	
....	29	29	38,053	38,082	....	38,082	
....	....	....	4,090	4,090	....	4,090	
....	....	....	104	104	....	104	
....	....	....	827	827	....	827	
29,164	9,421	29,585	1,46,835	1,76,420	....	1,76,420	

DETAILED REPORTS BY DIVISIONAL OFFICERS

WORKS FOR WHICH NEITHER CAPITAL NOR REVENUE ACCOUNTS ARE KEPT

AHMEDABAD, KAIRA AND PANCH MAHALS AND SURAT AND BROACH DIVISIONS

KHARI SLUICES

127. Due to the average rainfall the Khari river continued to flow and the whole area under the Khari sluices was well saturated. A himayat paying area of 6,433 acres in the 11 Kalambandhi villages in Matar Taluka of Kaira District was transplanted with rice which was successfully matured. In addition a non-himayat-paying area of 466 acres in the kharif season and 89 acres in the rabi season was irrigated in these villages. The miscellaneous revenue amounted to Rs. 858 against Rs. 158 of the previous year.

128. The sluices were maintained in good order at a cost of Rs. 4,498. A sum of Rs. 537 was spent during the year in completing special repairs to works damaged by the heavy floods of July 1927.

129. The following table compares the area irrigated and assessment levied with the average of the previous three years :—

	Average		1928-29	
	Area irrigated	Revenue after deducting remissions	Area irrigated	Revenue after deducting remissions *
	Acres	Rs.	Acres	Rs.
I. Irrigation above Kalambandhi villages.	638	3,355	416	3,055
II. Irrigation from tanks fed by the river Khari :—				
Goblaj ..	504	2,851	579	1,945
Galki ..	430	853	†185	483
III. Irrigation from the Khari sluices in the 11 Kalambandhi villages.	6,562	31,162	6,433	38,793
Total ..	8,134	38,221	7,613	44,276

* The revenue is consolidated.

† The area irrigated is less as there was not much replenishment in the tank during the year.

130. The assessment under the Khari sluices in the Kalambandhi villages is consolidated. The average rates per acre for land and water worked out as under :—

	Irrigation share	Land share	Total consolidated
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Government land	0 8 3	4 6 8	4 14 11
Alienated land	0 8 5	1 7 4	1 15 9

Muvalia Tank

131. The Muvalia tank is the largest tank in Panch Mahals District and is situated in the vicinity of Dohad town. It has a catchment area of about 39 square miles of hilly tract and therefore fills in almost all the years of normal rainfall. The tank filled to its full supply level during the year under review, the water rising to R.L. 139·15.

132. The rainfall at the station was 27·70 inches. The waste weir worked to a maximum height of about 1½ feet against 4 feet of the previous year. The damage caused to the waste weir in 1927-28 was partly repaired. The causeway of the Sukna nalla which suffered from the floods in the previous year was diverted down-stream to a better place. It was paved and 2 pipes of 18" diameter were provided underneath to carry the post-monsoon flow in the nalla.

133. Owing to good monsoon, the cultivators did not require water in the kharif season. The total area irrigated in the kharif, rabi and hot seasons was 549 acres and the gross assessment was Rs. 2,019. The miscellaneous revenue realised from all sources amounted to Rs. 227 against Rs. 682 of the previous year. The decrease was due to non-cultivation of the bed as the tank was full. The tank with its dam, canals and distributaries was maintained in good condition at a cost of Rs. 4,450. An expenditure of Rs. 1,450 was also incurred during the year on repairs to the damaged waste weir.

134. (*a*) Improvements to 1 tank in the Ahmedabad Division and 11 tanks in the Kaira and Panch Mahals Division and (*b*) repairs to 6 tanks in the Ahmedabad, 16 tanks in the Kaira and Panch Mahals and 64 tanks in the Surat and Broach Divisions were executed during the year at a total cost of Rs. 8,451 and Rs. 63,364 respectively.

135. The area irrigated and revenue derived from the old irrigation tanks and bunds were as under :—

Name of District	Area irrigated	Revenue		
		Irrigation share	Land share	Total consolidated assessment
	Acres	Rs.	Rs.	Rs.
Ahmedabad	9,985	21,802	46,857	68,659
Kaira	871	653	2,944	3,597
Panch Mahals	270	688	1,436	2,124
Surat	12,700	31,406	1,35,471	1,66,877
Broach	665	1,166	3,725	4,891
Total ..	24,491	55,715	1,90,433	2,46,148

136. The drainage channels in the Ahmedabad, Kaira and Panch Mahals and Surat and Broach Divisions were maintained in good order at a cost of Rs. 7,790, Rs. 4,142 and Rs. 6,712 respectively.

137. The miscellaneous receipts during the year from the old tanks and drainage channels were Rs. 17,427.

MUTHA CANALS DIVISION

Khamgaon Tank

138. This partially completed famine tank received good replenishment from the monsoon rains. Owing to good rains, however, there was no demand for canal water for both monsoon and rabi irrigation. Only 1 acre of kharif and 3 acres of rabi were irrigated and they brought in a gross revenue of Rs. 23, the corresponding figures for the previous year being 227 acres and Rs. 1,654 respectively.

139. The sub-joined table gives the area irrigated and the consolidated assessed revenue from the bandharas during the year as compared with the average of the past three years :—

	Area irrigated	Net consolidated revenue		
		Irrigation share	Land share	Total
	Acres	Rs.	Rs.	Rs.
1928-29	2,685	14,256	5,712	19,968
Average	678	4,444	1,231	5,675

140. No expenditure was incurred on the bandharas during the year. About 40 new works were taken during the year on the list of bandharas in the Poona Collectorate, and hence there is an apparent increase in the figures of area irrigated and revenue assessed as compared with the average of the past three years.

NASIK IRRIGATION DIVISION

Khirdi Sathe Tank

141. The management of this small tank was taken over by this Department in June 1927. On 1st April, the level of water in the tank was at R.L. 224·30 with a storage of 20 million cubic feet, the outlet sill being at R.L. 215. The lowest level was reached on the 11th June—R.L. 219·85 and the first replenishment was received on the 12th June. The level rose to R.L. 233·10 on the 6th October with a storage of 73·16 million cubic feet against the designed storage of 91·05 million cubic feet. Draw-off for irrigation commenced on the 30th October. On the 31st March the level of water fell to R.L. 225·60 with a storage of 25·05 million cubic feet. The rainfall in the catchment of the tank was 28·56 inches and was good ; there was sufficient water in the tank to meet the demands in the rabi season. The area irrigated during the year was 656 acres, which brought in an irrigation and gross assessed revenue

of Rs. 2,735 and Rs. 2,914 respectively, the figures for the previous year being 358 acres and Rs. 1,509 and Rs. 1,876 respectively. The increase in irrigation was due to the improvements recently carried out.

142. The sub-joined table compares the year's results as regards the area irrigated and the revenue assessed from the bandharas with the average of the past three years :—

	Area irrigated	Net consolidated revenue		
		Irrigation share	Land share	Total
	Acres	Rs.	Rs.	Rs.
1928-29	27,794	1,99,839	53,379	2,53,218
Average	26,075	1,77,013	54,342	2,31,355

143. The remissions granted by the Revenue Department during the year on account of inadequate supply and other causes amounted to Rs. 5,677 against Rs. 4,005 granted last year. The supply to the several bandharas was good and sufficient in general due to good late rains. The expenditure during the year on the bandharas was Rs. 23,155 exclusive of the charges for establishment and tools and plant.

EAST KHANDESH DIVISION

144. The area irrigated and revenue derived from each of the old works were as shown below :—

Name of work	Area irrigated	Revenue		
		Irrigation share	Land share	Total
	Acres	Rs.	Rs.	Rs.
1. Patonda bandhara and channel.	129	1,043	481	1,524
2. Toli channel	59	732	174	906
3. Amalner bandhara and channel.	371	2,854	1,151	4,005

The expenditure incurred was Rs. 499.

WEST KHANDESH DIVISION

Talwada Tank

145. On 1st April, the contents of the tank were 13·76 million cubic feet, which went down to zero on 9th May. The first replenishment was received on 11th July and the contents rose to 0·67 million cubic feet. The maximum storage obtained was 7·80 million cubic feet on

20th September. The tank dried up on 9th March. The rainfall gauged in the catchment at Talwada was 14·93 inches against 19·57 inches of the preceding year.

146. The total area irrigated was 131 acres and the water assessment was Rs. 708. The miscellaneous revenue amounted to Rs. 137-8-0. The expenditure incurred on maintenance and repairs to the tank and canal was Rs. 491.

147. The area irrigated and revenue derived from the old works during the year as compared with the average of the past three years were as follow :—.

	Area irrigated	Revenue		
		Irrigation share	Land share	Total
	Acres	Rs.	Rs.	Rs.
1928-1929	10,394*	60,458	11,448	71,906
Average	8,829	59,756	11,428	71,185

* This includes a double cropped area of 2,498 acres.

148. The outlay incurred on these works was Rs. 1,727 against Rs. 5,846, the average of the past three years.

SATARA DIVISION

Sap Bandhara and Borgaon Dam

149. The total area irrigated during the year was 306 acres and the consolidated assessment was Rs. 1,177. The irrigation share of the revenue amounted to Rs. 706 and the balance of Rs. 471 represented the land assessment.

SHOLAPUR DIVISION

Wadshivne Tank

150. On 1st April, the level of water in the tank was 10·92 feet over the sill of the outlet. The level gradually went down to 8·42 feet on 6th June. The rainfall in September brought in good replenishment, and the waste weir began to overflow on 29th September. The storage was utilised for irrigating crops in the rabi season.

151. The mean rainfall gauged at two stations in the catchment area of the tank (14·5 square miles) was 27·45 inches and the total replenishment received was 761·35 million cubic feet.

152. The area irrigated was 602 acres against 716 acres, the average of the past three years, the decrease being due to less demand for water. The gross revenue realised was Rs. 2,752 against Rs. 3,558 the average of the past three years, the decrease being due to less demand for water owing to timely and sufficient rainfall.

153. The expenditure on maintenance and repairs was Rs. 1,377 against Rs. 1,368, the average of the preceding three years.

DHARWAR DIVISION

154. There are nine tanks in this Division and the lands under them are assessed at consolidated rates. The total area irrigated and the irrigation share of land revenue were 444 acres and Rs. 1,681 respectively, the figures for the previous year being the same.

BELGAUM DIVISION

155. The following are the details regarding the number of tanks in the Belgaum Division, the area irrigated by them and the irrigation share of land revenue as compared with the figures for the previous year.

Number of tanks	Name of Collectorate	Area irrigated		Irrigation share of land revenue	
		1928-29	1927-28	1928-29	1927-28
		Acres	Acres	Rs.	Rs.
4	Ratnagiri	1,273	1,273	7,400	4,142
2	Belgaum	25	25	93	93
4	Bijapur	634	14	2,163	2,163

DHARWAR IRRIGATION DIVISION

156. There are about 4,500 second class irrigation tanks in the Dharwar Irrigation Division. Most of these tanks have no proper arrangements for waste weir and outlets. Out of them 168 tanks were repaired during the year at a cost of Rs. 58,565. In addition a sum of Rs. 8,386 was spent on extensions and improvements, including Rs. 6,870 spent on survey and preparation of projects for improvements to the old tanks.

157. The area irrigated and the irrigation share of land revenue were 91,937 acres and Rs. 3,09,735 respectively as compared with 88,150 acres and Rs. 2,75,668 for the previous year and 89,747 acres and Rs. 2,94,459, the average of the last three years. The remissions granted by the Revenue Department during the year amounted to Rs. 4,983.

Revenue Report of Irrigation Works in the Bombay Presidency excluding Sind for 1928-29 : Review of —

GOVERNMENT OF BOMBAY.

PUBLIC WORKS DEPARTMENT.

Resolution No. P. 19/14456.

Bombay Castle, 14th July 1930.

Letter from the Superintending Engineer, Northern Circle, No. $\frac{R\ 5\ (a)}{32}$ dated 2nd October 1929.

Submits the Irrigation Revenue Report for his Circle for 1928-29.

Letter from the Superintending Engineer, Deccan Irrigation Circle, No. 4743, dated 19th October 1929.

Submits the Irrigation Revenue Report for his Circle for 1928-29 and states that the general remarks will follow.

Letter from the Superintending Engineer, Central Circle, No. R. 5/6714, dated 24th October 1929.

Submits the Irrigation Revenue Report for his Circle for 1928-29 and states that the general remarks will follow.

Letter from the Superintending Engineer, Deccan Irrigation Circle, No. 4833, dated 24th October 1929.

Submits the general remarks for his Circle.

Letters from the Superintending Engineer, Irrigation Development and Research Circle, Nos. 2921 and 2940, dated 29th and 30th October 1929—Forwarding the Irrigation Revenue Report for his Circle.

Letter from the Superintending Engineer, Southern Circle, No. R. 5/S. C., dated 20th November 1929.

Submits the Irrigation Revenue Report for his Circles for 1928-29.

Letter from the Superintending Engineer, Central Circle, No. R. 5/81-D, dated 22nd January 1930.

Submits the general remarks for his Circle.

Letter from the Accountant General, Bombay, No. W. M. 23-1/2158, dated 28th February 1930.

Forwards two statistical tables in connection with Part II of the Irrigation Revenue Report, Deccan and Gujarat, for 1928-29, and reports the figures of total area under irrigation and total revenue due from works for which neither capital nor revenue accounts are kept.

RESOLUTION.—The Irrigation works dealt with in this report fall into two categories, viz. :—

(*i*) Tanks and canals for which capital and revenue accounts are kept.
(*ii*) Small tanks, bandharas and drainage channels for which neither capital nor revenue accounts are kept.

The works included under (*i*) above are described in detail in Part I of the report. The works mentioned under (*ii*) are small and numerous and a brief general account of them is given in Part II.

2. The total capital outlay on tanks and canals, for which capital and revenue accounts are kept, up to the end of the year under review was Rs. 10,07,54,120.

3. Including an area of 9,463 acres on which a consolidated water and land assessment was levied, the area irrigated was 231,544 acres against 248,222 acres in the previous year showing a decrease of 16,678 acres, due to timely and well-distributed rainfall.

4. The gross assessed revenue amounted to Rs. 31,59,294 as against Rs. 35,11,724 in the previous year and Rs. 33,93,018, the average of the previous three years.

5. The unrealised balance at the close of the year amounted to Rs. 16,95,073. A portion of this amount has since been recovered and steps have been taken to recover the balance still outstanding.

6. The working expenses amounted to Rs. 17,99,486 showing an increase of Rs. 1,98,041 over the figure for the previous year due largely to the Nira Right Bank Canal having been recently opened for irrigation.

7. The net revenue for the year was :—

	Rs.
(1) On the basis of assessment, ...	13,59,808
(2) On the basis of realisation, ...	14,98,277

as compared with Rs. 19,10,279 and Rs. 20,62,036 respectively of the previous year.

8. The statement embodied in paragraph 13 of the report exhibits the financial results, based on actual figures of the more important irrigation works in operation in the Presidency. The Ekruk Tank and the Nira Left Bank Canal yielded a return of 7·61 and 5·78 per cent. respectively on the capital outlay.

9. The total area irrigated by works for which neither capital nor revenue accounts are kept was 164,756 acres and the gross revenue obtained was Rs. 7,41,695. The total expenditure incurred on improvement and repair of these works was Rs. 9,87,261.

By order of the Governor in Council,

T. A. ANDREW,
Deputy Secretary to Government,
Irrigation and Railways.

gitized with financial assistance from th
Government of Maharashtra
on 22 July, 2017

To

The Revenue Department.
The Finance Department.
The Commissioner in Sind.
The Commissioner, Northern Division.
The Commissioner, Central Division.
The Commissioner, Southern Division.
The Settlement Commissioner and Director of Land Records.
The Director of Agriculture.
The Director of Information.
The Chief Engineer, Lloyd Barrage and Canals Construction.
The Chief Engineer in Sind.
All Superintending Engineers of Circles.
The Accountant General, Bombay.
The Executive Engineers in charge of Irrigation Works in the Deccan and Gujarat.
The Secretary to the High Commissioner for India (by letter).

MO F 17—7

BOMBAY : PRINTED AT THE GOVERNMENT CENTRAL PRESS.